

Lectures on Exceptional Lie Groups. Edited by Zafer Mahmud and Mamoru Mimura. University of Chicago Press, Chicago. (1996). 122 pages. \$45.00, £35.95 (cloth); \$19.95, £15.95 (paper).

Contents:

Summary of constructions. Foreword. Acknowledgments. Introduction. 1. Definitions, examples and matrix groups. 2. Clifford algebras. 3. The Spin groups. 4. Clifford modules and representations. 5. Applications of Spin representations. 6. The exceptional groups: Construction of E_8 . 7. Construction of a Lie group of type E_8 . 8. The construction of Lie groups of type F_4, E_6, E_7 . 9. The Dynkin diagrams of F_4, E_6, E_7, E_8 . 10. The Weyl group of E_8 . 11. Representations of E_6, E_7 . 12. Direct construction of E_7 . 13. Direct treatment of E_6 . 14. Direct treatment of F_4 , I. 15. The Cayley numbers. 16. Direct treatment of F_4 , II: Jordan algebras. Appendix. References.

Foundations of Neural Networks, Fuzzy Systems, and Knowledge Engineering. Nikola K. Kasabov. MIT Press, Cambridge, MA. (1996). 550 pages. \$60.00

Contents:

Foreword by Shun-ichi Amari. Preface. 1. The faculty of knowledge engineering and problem solving. 2. Knowledge engineering and symbolic artificial intelligence. 3. From fuzzy sets to fuzzy systems. 4. Neural networks: Theoretical and computational models. 5. Neural networks for knowledge engineering and problem solving. 6. Hybrid symbolic, fuzzy, and connectionist systems: Toward comprehensive artificial intelligence. 7. Neural networks, fuzzy systems and nonlinear dynamical systems chaos; Toward new connectionist and fuzzy logic models. Appendixes. References. Glossary. Index.

Data Structures and Algorithms: An Object-Oriented Approach Using Ada 95. By John Beidler. Springer-Verlag, New York. (1997). 364 pages. DM 78.00, öS 569.40, sFr 69.00.

Contents:

Preface. 1. Preliminaries. 2. Encapsulation. 3. Stacks. 4. Queues. 5. Lists. 6. Trees. 7. Tree applications. 8. Graphs. 9. Sets. 10. Strings. 11. Sorting. 12. Search/update. References. Index.

Finite Fields: Encyclopedia of Mathematics and Its Applications. By Rudolf Lidl and Harald Niederreiter. Cambridge University Press, Cambridge, U.K. (1997). 755 pages. \$95.00.

Contents:

Foreword. Preface. 1. Algebraic foundations. 2. Structure of finite fields. 3. Polynomials over finite fields. 4. Factorization of polynomials. 5. Exponential sums. 6. Equations over finite fields. 7. Permutation polynomials. 8. Linear recurring sequences. 9. Applications of finite fields. 10. Tables. Bibliography. List of symbols. Author index. Subject index.

Science in the Field. Edited by Henrika Kuklick and Robert E. Kohler. Osiris, a Research Journal, University of Chicago Press, Chicago, IL. (1996). 265 pages. \$39.00 (cloth), \$25.00 (paper).

Contents:

Science in the field. Introduction (Henrika Kuklick and Robert E. Kohler). Life in the field. Gender, culture, and astrophysical fieldwork: Elizabeth Campbell and the Lick Observatory-Crocker Eclipse Expeditions (Alex Soojung-Kim Pang). Wallace in the field (Jane Camerini). The heroic science of glacier motion (Bruce Hevly). Objectivity or heroism? On the invisibility of women in science (Naomi Oreskes). Popular culture. When nature is the zoo: Vision and power in the art and science of natural history (Gregg Mitman). Voyages of discovery on oceans of air: Scientific observation and the image of science in the age of "Balloonacy" (Jennifer Tucker). "It may be truth, but it is not evidence": Paul du Chailu and the legitimation of evidence in the field sciences (Stuart McCook). Material culture. Of Sangfroid and Sphinx moths: Cruelty, public relations, and the growth of entomology in England, 1800–1840 (Anne Larsen Hollerbach). The ship as a scientific instrument in the eighteenth century (Richard Sorrenson). A tent with a view: Colonial officers, anthropologists, and the making of the field in Northern Rhodesia, 1937–1960 (Lynette Schumaker). Notes on contributors. Index.

Symbolic Integration I: Transcendental Functions. By Manuel Bronstein. Springer-Verlag, New York. (1997). 299 pages. DM 78.00, öS 569.40, sFr 69.00.

Contents:

Foreword. Preface. 1. Algebraic preliminaries. 2. Integration of rational functions. 3. Differential fields. 4. The order function. 5. Integration of transcendental functions. 6. The Risch differential equation. 7. Parametric problems. 8. The coupled differential system. 9. Structure theorems. References. Index.

Interactive Linear Algebra: A Laboratory Course Using Mathcad®. By Gerald Porter and David Hill. Springer-Verlag, New York. (1996). DM 69.00, öS 503.70, sFr 61.00 (2 diskettes included).

Contents:

Before you start—Books and palettes—Mathcad. 0. Introduction. 1. Vectors and matrices. 2. Systems of linear equations and their solution sets. 3. Determinants and their applications. 4. Lines and planes. 5. Applications of the dot product. 6. Eigenvalues and their applications. 7. Linear transformations. 8. Vector spaces. Index.